



THE STATE
of **ALASKA**
GOVERNOR BILL WALKER

**Department of
Environmental Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File Nos.: 320.38.007
320.38.008

November 21, 2017

Steve Kullman
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Box 4490, Station D
Calgary, Alberta, Canada
T2P 3G7

Subject: **DECISION DOCUMENT: CLEANUP COMPLETE DETERMINATION**
Camp Lonely Landfills and Associated Pads, Camp Lonely Bulk Fuel Tank Storage Area,
Incinerator Utility Building Area, Vehicle Maintenance Shop

Dear Mr. Kullman:

The Alaska Department of Environmental Conservation (ADEC) has completed a review of the environmental records associated with the Camp Lonely Landfill located one mile west of Pt. Lonely in Nuiqsut. Based on the information provided to date, it has been determined that the contaminant concentrations remaining on site do not pose an unacceptable risk to human health or the environment and no further remedial action will be required unless new information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the Camp Lonely Landfill, which is located in the ADEC office in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Site Names and Locations:

- Camp Lonely Landfill
- Camp Lonely Bulk Fuel Tank Storage Area
- Incinerator Utility Building Area
- Vehicle Maintenance Shop

70°54'31.80"N, 153°17'49.00"W
One mile west of Point Lonely
Nuiqsut, AK 99789

Name and Mailing Address of Contact Party:

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DEC Site Identifiers			
Hazard ID	File No.	Site Name	Description/Comment
4113	320.38.007	Camp Lonely Landfill(s)	Western Landfill and Northeast Landfill
4179	320.38.008	Camp Lonely Bulk Fuel Tank Storage Area	65,000-Gallon Aboveground Storage Tank (AST) and Pump House
4180	320.38.008	Incinerator Utility Building Area	Releases associated with Incinerator Building and Generator/Sewage Treatment Building
4181	320.38.008	Vehicle Maintenance Shop Area	Vehicle Maintenance Shop Area including Communication Shop, Loading Dock, and 1,300 Gallon AST

Regulatory Authority for Determination: 18 AAC 75¹

Site Description and Background

Camp Lonely is located on the coast of the Beaufort Sea, approximately 3.5 miles west of Pitt Point between Smith and Harrison Bays; 120 miles west-northwest of Prudhoe Bay; and one mile northwest of the inactive Point Lonely Short Range Radar Station (SRRS). Camp Lonely was a former base of operations for exploratory oil drilling in the NPRA. The Western Landfill, located on the edge of the western edge of the pad, was used in the 1980s for disposal of waste from Point Lonely SRRS. With the exception of cleanup and demolition activities, there has been little activity at the site since the 1980s. The Northeast Landfill was located in the northeast corner of the pad. It was approximately two-tenths of acre in size and a presumably older area of deposited waste. Other areas on the pad were also identified as containing petroleum-contaminated gravel. These locations tend to be where diesel fuel was presumably stored or handled.

In 2004, ADEC identified Cook Inlet Region Incorporated (CIRI), the United States, and Husky as Potentially Responsible Parties (PRPs) under state and federal law for the Landfill. On August 11, 2005, the PRPs entered into a Settlement Agreement to undertake site characterization and other interim actions at the landfill during 2005. The cleanup was managed and coordinated by Husky Oil Operations Limited (Husky), on behalf of the Potentially Responsible Parties.

Preliminary investigations conducted in 2005 revealed contamination at the Camp Lonely site. Cleanup activities were initiated in 2013, in part because the shoreline near Camp Lonely was eroding. Coastal erosion had the potential to erode the pad and release buried debris or contaminated soil into the adjacent Beaufort Sea. The pad was approximately 15 acres in size prior to the 2013 removal actions and 10 acres after removal of the Western Landfill.

Contaminants of Concern

The following contaminants of concern (COC) were reported above approved cleanup levels during the course of the assessment and remedial actions.

- Gasoline Range Organics (GRO)
- Diesel Range Organics (DRO)
- Residual Range Organics (RRO)
- Chromium
- Lead
- Polychlorinated Biphenyls (PCBs)
- Total Xylenes

¹ Alaska Oil and Other Hazardous Substances Pollution Control

Cleanup Levels

On December 12, 2012, ADEC approved the *Camp Lonely Cleanup Plan (Landfill and Associated Pad)* which established site-specific soil cleanup levels for GRO, DRO, and RRO due to the potential for long-term coastal erosion at the site. These site-specific levels address the concern that if Arctic Zone Method Two CULs were used, the residual concentration of petroleum hydrocarbons in the soil could potentially cause sheen if the soil eroded and came into contact with surface water. The DRO soil concentration that may cause sheen was conservatively estimated at 500 milligrams per kilogram (mg/kg) based on background research and site-specific sheen tests. Therefore, 500 mg/kg was chosen as the target cleanup level near the edge of the pad or water. The target cleanup levels for GRO and RRO were set at 100 and 2,000 mg/kg, respectively, which are the same as ADEC Method One cleanup levels for the Arctic Zone.

The petroleum hydrocarbon CULs for soils in more inland locations of the pad were set at less stringent levels because these areas are less susceptible to erosion and the petroleum hydrocarbons will have more time to naturally degrade. The CULs for interior portions of the pad were set at 1,000 mg/kg DRO and 150 mg/kg GRO.

For purposes of applying these cleanup levels, the interior of the pad is defined as:

- (1) 25 feet from the toe of the pad on the eastern, western, and southern edges of the pad; for areas where standing water persists after excavation, the interior of the pad began 25 feet onto the pad from the areas where the standing water exists; and
- (2) 300 feet from the Beaufort Sea on the seaward (northern) edge; in addition, the pad edge is based on the "new" pad edge after the removal actions and backfilling is complete.

The ADEC migration to groundwater standard is not applicable to North Slope sites because the underlying permafrost and freezing temperatures prevent the formation of a groundwater aquifer and restrict the vertical migration of contaminants. The soil cleanup criteria for the primary COCs are summarized in Table 1, below.

Table 1 – Approved Cleanup Levels

	Soil Cleanup Levels (mg/kg)	
	Interior Pad Areas	Exterior Pad Areas
GRO	150	100
DRO	1000	500
RRO	2,000	2,000
Chromium (total)	410	410
Lead	400	400
Polychlorinated Biphenyls (PCBs)	1.0	1.0
Total Xylenes	63	63

Characterization and Cleanup Activities

Characterization and cleanup activities conducted under the regulatory oversight of ADEC began in 2006 and continued through 2016.

Petroleum-Contaminated Soil Pad Areas

In 2013-2014, excavation of petroleum-contaminated soil was completed at five of the six pad areas identified for action in the Cleanup Plan (Pump House, Vehicle Maintenance Shop [VMS], Incinerator

Building, Western Landfill, and Northeast Landfill). The sixth pad area, identified as 65,000-gallon AST, was investigated but determined not to be a concern due to lack of impacted soil. However, test pits near the former Pump House identified petroleum hydrocarbon concentrations in the soil higher than previously detected and soil was also excavated at that location. The extent of petroleum contamination in the Vehicle Maintenance Shop area was significantly larger than originally estimated, and the excavation was expanded to encompass two adjacent areas, the Communication Shop and Loading Dock. A total of 8,900 cubic yards of petroleum-contaminated gravel was excavated and staged on the pad for landfarming the following season. Excavations were guided by existing data, soil odors, visual observations, and the results of qualitative screening of the soil with a photoionization detector (PID). At most locations, the gravel was removed down to the native soil (peat and silt), which was five to six feet below the original pad surface.

Confirmation sampling was conducted for benzene, toluene, ethylbenzene, and xylenes (BTEX), polynuclear aromatic hydrocarbons (PAH) and GRO, DRO, and RRO. The concentrations were either non-detectable or well below ADEC Method Two cleanup levels at all locations. Petroleum hydrocarbon concentrations were also below the site specific-cleanup levels established for the gravel pad, with a few minor exceedances at the Pump House, VMS, and Incinerator Building. The remaining contamination (located five to six feet below the original pad surface) is limited in extent, relatively low in concentration and does not pose a risk to surface water. Furthermore, at least some of the DRO and RRO detected in the floor samples has been attributed to natural organics (peat) in the sample matrix. Almost all of the excavated areas, including the sample points with exceedances, were backfilled with clean fill.

Western Landfill Cleanup

Removal of the landfill was completed in 2013. Waste segregated from PCS was sent offsite to the appropriate treatment, storage and disposal (TSD) facility. The gravel pad in the landfill area was removed down to the native soils, which consisted of peat and silt. Removal of the landfill was deemed complete based on the absence of significant visible solid waste on the excavation floor or sidewalls. The total volume of petroleum-contaminated gravel generated by the landfill removal was approximately 20,000 cubic yards. After the solid waste was removed, the PCS was placed on the pad for eventual treatment by landfarming.

Approximately 440 cubic yards (570 tons) of soil with lead, polychlorinated biphenyls (PCBs), or chromium concentrations above Method Two cleanup levels was segregated from the PCS and sent offsite for disposal. Approximately half of the contaminated soil sent offsite was classified as RCRA² waste due to levels of lead or chromium, based on toxicity characteristic leaching procedure analysis. Other than the soil, a relatively small volume of the landfill material contained hazardous substances or waste. Most of this waste was broken battery parts (about 6 tons), which was classified as a RCRA hazardous waste. In addition, approximately 700 gallons of liquid products were recovered from buried drums, primarily used oil and diesel fuel.

After landfill removal, confirmation sampling and analysis of the soil on the floor and sidewalls of the excavation was completed for petroleum hydrocarbons, BTEX, PAHs, PCBs, and lead. The only contaminants detected above Method Two cleanup levels were lead and total xylenes, with a single exceedance for each analyte (out of 103 and 87 floor samples, respectively). These exceedances were considered *de minimis* contamination across the 4.2-acre area.

² Resource Conservation and Recovery Act

Northeast Landfill

The Northeast Landfill was removed in August and September 2013. Approximately 70 cubic yards of gravel removed from the landfill was petroleum-contaminated. The PCS was stockpiled on the pad for treatment by landfarming. No hazardous waste or substances were found in the landfill, and none of the excavated soil required offsite disposal.

The removal action at the Northeast Landfill was conducted until all visible debris was removed from the floor and sidewalls of the excavation. The floor of the excavation coincided with the presence of native soils. Confirmation sampling of the excavation floor and sidewalls verified no contamination exceeding cleanup levels was present. Hydrocarbon sample results were generally low, with no samples exceeding the most stringent (Method One) gravel pad cleanup levels.

Landfarming of Petroleum Contaminated Soils

The soil volume generated by the cleanup activities was larger than originally estimated, at approximately 27,000 loose cubic yards (LCY). Due to the size of the pad and the associated setbacks, the surface area of the landfarm could not be expanded and increasing the thickness of the landfarm was the only option. Two separate lifts of approximately 1.5 feet thick were used to treat the contaminated soil.

In the fall of 2013, the landfarm was constructed approximately 25 feet from the pad edge on inland sides and approximately 300 feet from the coastline (northern edge) in order to reduce the potential for soil dispersal due to surface water runoff or erosion prior to completion of treatment. Landfarming consisted of spreading one lift of soil on the pad each summer, fertilizing, and periodically tilling the soil. The primary contaminant of concern was DRO; however, the landfarm was also sampled for GRO, RRO, BTEX, and PAH compounds. A multi-increment (MI) sampling technique was used to monitor progress of treatment and determine when cleanup levels were attained. Landfarming was conducted until the concentration of petroleum hydrocarbons in the soil reached the target DRO cleanup level of 1,000 mg/kg.

Based on samples collected from representative decision units, initial DRO concentrations in the landfarm soil ranged from 1,263 to 1,830 mg/kg. DRO concentrations in the soil decreased during the treatment period, which was typically 30 to 40 days per unit. Based on the MI sample results, the landfarming was successful in treating the soil to below the target cleanup levels established for active treatment (1,000 mg/kg DRO). All units reached a DRO concentration of less than 1,000 mg/kg, and nine of the units reached a level of less than 500 mg/kg. Sample results for GRO, RRO, BTEX, and PAH compounds were all below the most stringent cleanup levels established for the site.

Surface Water Monitoring

The surface water monitoring program was initiated in 2014 following the first phase of the cleanup (removal actions) to confirm that there are no persistent exceedances of Alaska Water Quality Standards (AWQS) in adjacent surface water bodies. Monitoring was conducted in 2014, 2015, and 2016 at four locations distributed around the perimeter of the pad where surface water bodies are present throughout the field season. Two sample locations were located on the western side of the pad, which has the largest surface water bodies, and is the predominant direction of surface water drainage from the pad into the adjacent wetlands. This is also the location of the former Western Landfill where past AWQS exceedances were detected for benzene and total aromatic hydrocarbons. The other two sample locations were located on the east side of the pad in small tundra ponds.

During all sampling events, results at all four locations were non-detect for benzene, toluene, ethylbenzene, and total xylenes, and there was no observable petroleum sheen in the water bodies.

The surface water sampling program demonstrated that the surface water bodies adjacent to the Camp Lonely pad continue to be in compliance with AWQS for the contaminants of concern.

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be made that the risk from hazardous substances does not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative non-carcinogenic risk standard at a hazard index of one across all exposure pathways.

Based on a review of the environmental record, ADEC has determined that residual contaminant concentrations meet the human health cumulative risk criteria for residential land use.

Exposure Pathway Evaluation

Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using ADEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in Table 2.

Table 2 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	The contents of the Western and Northeast landfills have been removed. Contaminated soils and debris have been removed from the site or remediated.
Sub-Surface Soil Contact	De Minimis	The minimal volume of remaining contamination is unlikely to impact potential receptors.
Inhalation – Outdoor Air	Pathway Incomplete	The contents of the Western and Northeast landfills have been removed. Contaminated soils and debris have been removed from the site or remediated.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	There are no buildings at this site. All contaminated soil & debris have been removed or remediated.
Groundwater Ingestion	Pathway Incomplete	Permafrost limits the presence of ground water to the active layer, which thaws during the summer months. The water present in the active layer is not known to be used for any purpose.
Surface Water Ingestion	Pathway Incomplete	Surface water sample results in 2014 and 2015 were non-detect for benzene, toluene, ethylbenzene, and total xylenes. There was no observable petroleum sheen on surface water bodies. Surface water on the gravel pad is not a current or potential future source of drinking water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminated soils and debris have been removed from the site or remediated.
Exposure to Ecological Receptors	Pathway Incomplete	Contaminated soils and debris have been removed from the site or remediated.

Note: *De Minimis* exposure means that in ADEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in ADEC's judgment contamination has no potential to contact receptors. "Exposure Controlled" means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

ADEC Decision

Soil and groundwater contamination at the site have been cleaned up to concentrations below the approved cleanup levels suitable for residential land use. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

1. Any proposal to transport soil off-site requires ADEC approval in accordance with [18 AAC 75.325(i) or 18 AAC 78.600(h)]. A "site" [as defined by 18 AAC 75.990 (115) or 18 AAC 78.995(134)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership. (See attached site figure.)
2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC from requiring additional assessment and/or cleanup action if future information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

Appeal

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 555 Cordova Street, Anchorage, Alaska 99501-2617, within 15 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, P.O. Box 111800, Juneau, Alaska 99811-1800, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have questions about this closure decision, please feel free to contact me at (907) 451-5175, or via email at jamie.mckellar@alaska.gov.

Sincerely,

Jamie McKellar
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit
Bret Berglund, SLR